

## **REMARKS**

### **Objections to the Drawings**

The drawings were objected to for several enumerated reasons. The Applicant respectfully traverses these objections and seeks reconsideration in light of the attached replacement drawings. The replacement drawings clearly indicate "O2" in Figure 4b. Reference number 23 has been corrected in Figure 20. The limitations of claim 1 including "a center angle from the joint center M to the turning point (T1-2), with reference to a central joint plane (E)"; the center angle being greater than 4 degrees; and the limitations of claims 36-40, and 43 are all explicitly shown in Figure 4, 5, 7 and 8. Reconsideration is requested.

### **Objections to the Specification**

The Examiner indicated several errors within the specification. The Applicants have respectfully amended the specification in order to remove the objectionable matter. As requested, a clean copy and marked up copy of a substitute specification is attached. The specification contains no new matter. The Applicants seek reconsideration.

### **Claims Rejected under 35 U.S.C. §112, first paragraph**

The Examiner rejected claims 1 and 36-69 under 35 U.S.C. §112, first paragraph as failing to comply with the enablement requirement. Claims 2-35 and 50-65 have been cancelled. The Applicants respectfully traverse this rejection and seek reconsideration in light of the attached amendments.

The claims have been clarified such that the center angle ( $\beta$ ) is defined between the central joint plane (E) and a line through the joint center (M) and the turning point (T1-2). This is fully supported from figures 4a, 5, 7 or 8. With regard to the center angle ( $\beta$ ) being greater than 4 degrees, the Applicant respectfully calls the Examiner's attention to paragraph [0023] of the specification as published (see US 2007/00111806 A1 document). There is clear support that by way of the angle it is ensured that the joint operates as a counter track joint. Furthermore, it is stated in paragraphs [0023] and

according to Figure 5 and claimed in claim 38 will be the result. Reconsideration is requested.

The counter radius R1 is shown in Figures 6, 7, 8, 9, 10, 11, 13 and 14. It should be clarified that the track lines L18, L19 are defined by the inner and outer ball tracks. As clearly described in paragraph [00119] with regard to the embodiment shown in Figure 4 the track center line (beyond the turning point T1-2) continues in a radius R1 (with regard to the outer joint part shown in Figure 4b) and R1 (with regard to the inner joint part shown in Figure 4c). Reconsideration is requested.

The Examiner should understand that the center angle  $\beta$  defined in claims 1, 36 and 37 is the same angle  $\beta$  which is described in the specification and shown in drawings 4, 5, 7 and 8.

The Applicant has clarified the definition of the turning point angle in new claims 38 and 40. Reconsideration is requested. In addition, it should be understood that the radius R1 described in the specification is the same as the radius recited in claims 41 and 42 as counter radius R1.

#### **Claims Rejected under 35 U.S.C. §102(b) (e)(d)**

The Office Action rejected claims 1, 36-40, 46 and 47 under both 35 U.S.C. §102(b) citing Krude (2001/0006910). The Applicants respectfully traverse these rejections and seek reconsideration. Krude discloses a regular counter track joint having central track lines which are curved in only one direction. Thus, compared with the subject matter according to new claim 1, Krude fails to show the following features:

- central track lines having a turning point, the turning point forming a transition from the curvature with radius R2 into a counter-curvature or into a straight line.
- a center angle  $\beta$  being defined between a central joint plane (E) and a line through a joint center M and said turning point. Wherein the center angle  $\beta$  is greater than 4 degrees; and
- a turning point angle being so defined between an offset plane and a line through a center point and set turning point. Where the turning point angle being within a range of  $10^\circ < \alpha < 18^\circ$ .

The claimed counter track joint is thus clearly novel over Krude. It is also inventive because Krude fails to disclose or suggest anything like the claimed angle ratios.

The inventive joint has the advantage that the service life range of operation, in which the joint operates as counter track joint is maximized. In this range, the forces  $F_1$  acting from the balls within the first pairs of tracks to the ball cage on the one hand and the forces  $F_2$  acting from the balls in the second pair of tracks to the ball cage on the other, equalize themselves so that the cage remains axially balanced. Furthermore, this leads to a prolonged service life with the inventive counter track joint. By defining the turning point angle  $\alpha$  within the claimed range it is achieved that for larger articulation angles of the joint the enveloping angles of the ball tracks around the balls are optimized which is also advantageous for a long service life.

Claims 1 and 36-39 were rejected under 35 USC 102(e) as being anticipated by Schwarzler (US 2006/0281565). The Applicant respectfully traverses this rejection. Schwarzler discloses a counter track joint, the central track lines of which having a turning point (see W22 in Figure 5a for the outer joint part or W23 in Figure 5b for the inner joint part). It can be measured from the drawings that the angle between the central plane (EM) and the line (M-W22) is smaller than 3 degrees. This means that the service life range of the Schwarzler joint in which the joint operates as a counter track joint is small, so that beyond an articulation of 3 degrees the forces acting on the ball cage are not balanced. This leads to NVH problems. Compared with the claimed subject matter according to new claim 1, Schwarzler fails to disclose the center angle  $\beta$  greater than 4 degrees and a turning point angle  $\alpha$  being within a range of 10-18 degrees. Therefore, the Applicant submits that the present claims are novel over Schwarzler. It is further submitted that Schwarzler fails to teach any of the claimed angles and thus fails to teach any of the aforementioned advantages of the claimed counter track joint.

#### **DE 103 37 612 A1**

The Examiner should be made aware that this German document has not presently been granted (see paragraph 13 c of the examination report). Furthermore,

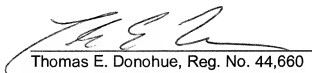
DE 612 fails to clearly disclose a turning point angle  $\alpha$  being defined between an offset plane and a line through a center point and a turning point, wherein the turning point angle  $\alpha$  is within the rage of between 10 and 18 degrees including 10 and 18 respectively. Thus the present application contains patentable novelty over all the cited art. Reconsideration is formally requested.

### **Conclusion**

Having overcome all of the objections and rejections set forth in the Office Action, Applicants submit that claims 1, 36-49, 66-69 are in a condition for allowance. A Notice of Allowance indicating the same is therefore earnestly solicited. The Examiner is invited to telephone the Applicants' undersigned attorney at (248) 433-7221 if any unresolved matters remain.

Respectfully submitted,

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